

REVIEW OF THE NEW ZEALAND ACMÆIDÆ, WITH DESCRIPTIONS  
OF NEW SPECIES AND SUBSPECIES.

By HENRY SUTER.

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PLATE XXVII.

Genus ACMÆA, Eschscholtz.

Subg. *ACMÆA*, s.str.

Formula of teeth of radula, 2 (1 + 0 + 1) 2.

Type, *Acmaea mitra*, Esch.

1. *ACMÆA RUBIGINOSA* (Hutton). Pl. XXVII, Figs. 1-2.

*Fissurella rubiginosa*, Hutton: Cat. Mar. Moll. N. Zeal., 1873, p. 42.

*Patella rubiginosa*, Hutton: Journ. de Conch., vol. xxvi, 1878, p. 38;

Man. N. Zeal. Moll., 1880, p. 110.

*Acmaea rubiginosa*, Hutton: Proc. Linn. Soc. N.S. Wales, vol. ix,  
1884 (1885), p. 372.

*Glyphis rubiginosa*, Hutton: Pilsbry, Man. Conch. (1), vol. xii, p. 216.

*Acmaea lacunosa*, Reeve: v. Martens, Zool. Rec., vol. x, p. 150;

Pilsbry, Man. Conch. (1), vol. xiii, p. 53; Suter, Trans. N. Zeal.

Inst., vol. xxxiv, p. 218; Hutton, Index Faunæ Nov. Zeal.,  
p. 85; not of Reeve.

Shell oval, conoidal, white or light rufous, ribbed. The radiating ribs are very distinct, rounded, their number very variable; there are from 10 to 20 ribs extending from the apex to the margin, besides a number of shorter interstitial ribs, but the total number does generally not exceed 30. The encircling growth-lines are fine and close together. Colour rufous, with the ribs white; dead shells are pure white, the apex brown. The latter is usually situate at the anterior third, sometimes a little nearer the centre; it is small and has the aspect of a callosity filling up a fissurelloid perforation. Inside porcellanous, white, with radiating pinkish rays, corresponding to the interspaces between the ribs. Central area more or less clouded with brown; margin slightly erenate.

Length 18, breadth 13, height 6 mm.

„ 13, „ 10, „ 3 „

The dentition is unknown, and I have never had an opportunity of obtaining an animal of this species. From the character of the shell it may be surmised to be the same as in *A. cingulata*.

Type in the Colonial Museum, Wellington.

*Hab.*—Hitherto only known from the Chatham Islands, but lately dredged in 10 fathoms by Capt. J. Bollons, near Taumaki Island, west coast of the South Island.

The number of ribs and the height of the shell are very variable. Most specimens have a thick covering of Nulliporites. The habitat of

*A. lacunosa*, Reeve, is unknown, and it is not identical with *rubiginosa*, *cingulata*, or *corticata* of Hutton, as Mr. E. A. Smith, of the British Museum, kindly informed me after sending him the above-named species for comparison.

Fossil in the Pliocene.

2. *ACMÆA CINGULATA*, Hutton. Pl. XXVII, Figs. 3-5.

*Acmaea cingulata*, Hutton: New Zeal. Journ. Sci., vol. i, 1883, p. 477; Trans. N. Zeal. Inst., vol. xvi, 1883 (1884), p. 215; Proc. Linn. Soc. N.S. Wales, vol. ix, 1884 (1885), p. 372; Pilsbry, Man. Conch. (1), vol. xiii, p. 53; Hutton, Index Faunæ Nov. Zeal., p. 85.

Shell oval, conoidal, moderately solid, white to yellowish brown, with numerous radiating ribs, which are low, rounded, and varying in number from 30 to 50; there are usually 10 to 15 primary ribs and numerous finer riblets in the interstices; a number of concentric ridges sometimes render the ribs slightly crenate. Colour mostly white, sometimes light brown, the ribs nearly white. Apex at the anterior fourth, oval in shape and convex, mostly dark brown; anterior slope nearly straight. Inside white, porcellanous, central area white, rarely with a small brown spot underneath the apex; margin indistinctly crenulate, with a narrow pinkish border.

Length 17, breadth 13, height 6 mm.

„ 16, „ 12, „ 5 „

The dentition was described and figured by Hutton (Trans. N. Zeal. Inst., vol. xvi, p. 215, pl. xi, fig. 5), and a copy of his figure is here reproduced. It is typical, resembling very much that of *A. mitra*, Esch., with short, stout, conical cutting-points.

Type in the Canterbury Museum, Christchurch.

*Hab.*—Dunedin and Lyttelton (Hutton); Lyall Bay (H. S.); East Cape lighthouse. On rocks between tide-marks, not common.

Distinguished from its nearest ally, *A. rubiginosa*, by the more anterior apex, the more numerous and lower ribs, the white interior, and the purplish or pinkish border. Always covered with a thick layer of Nulliporites.

3. *ACMÆA INTERMEDIA*, n.sp. Pl. XXVII, Figs. 6-8.

Shell oval to subcircular, conoidal, thin, light brown, finely ribbed. The fine, equidistant, and equal rounded riblets number from 25 to 50, interstitial riblets are mostly absent; a few concentric distinct growth-lines are commonly present. Colour light brown, the riblets white. Apex at about the anterior third, near the centre in subcircular examples; nucleus very small, oval, dark brown. Inside shining, with the spatula dark brown, the border much lighter in colour.

Length 7.5, breadth 6, height 2.25 mm. (type).

„ 11, „ 9, „ 4.5 „

„ 8, „ 6.5, „ 3 „

The dentition is unknown. None of the specimens contained the animal. Type in my collection.

*Hab.*—Near Bounty Islands, in 50 fathoms. I am indebted to Captain J. Bollons for the specimens.

This species has more equal, equidistant, and finer riblets than *A. rubiginosa* and *cingulata*; there is an almost constant absence of shorter interstitial riblets; no rays on the inside and no marginal border are present, and the sharply defined, uniformly dark-brown spatula is characteristic. It is probable that the shells were washed down from shallower water, as all of them were empty and more or less worn.

4. *ACMÆA ROSEORADIATA*, n.sp. Pl. XXVII, Figs. 9–10.

Shell very small, oval, conical, with broad pinkish radiate rays. The sculpture, which only a good lens will reveal, consists of twenty very indistinct low riblets on the lower half of the shell, each bordering one of the pinkish rays; upper half with about twice the number of microscopic, subobsolete, radiate striae. The colour of the upper half is light pinkish-brown, of the lower part white, with 10 broad radiate pinkish rays, unequally distanced. Apex sharply pointed, very little in front of the centre. Inside having the central area pinkish, slightly lighter-coloured in the middle; border rayed with pink like the outside; margin sharp. Length 3·5, breadth 2·5, height 1·5 mm.

The dentition is unknown. Type in my collection.

*Hab.*—The type is from 18 fathoms, Port Pegasus, Stewart Island, dredged by Captain J. Bollons, to whose great kindness I owe my specimens; Dusky Sound, South Island, 30 fathoms (R. Henry); Taumaki Island, west coast of the South Island, 10 fathoms (Captain J. Bollons).

This pretty little shell is well characterized and quite distinct from all the other known New Zealand species of the genus.

The four species enumerated seem to form a natural group of the subgenus. The shells are nearly white, opaque, but little coloured. The dentition of *A. cingulata* is typical, and it may be assumed that it is very similar in the other species, *roseoradiata* perhaps excepted.

All the following species of the subgenus have, with a few exceptions, strongly coloured shells, which are sometimes pellucid, and the teeth have hamate cutting-points. There are only three species of which I was unable to examine the radula. These species conveniently form a second group. From the figures supplied it will be seen that for this group the character of the radula can hardly be used for separating the different species.

5. *ACMÆA FRAGILIS* (Chemnitz). Pl. XXVII, Fig. 11.

*Patella fragilis*, Chemnitz: Conch. Cab., vol. xi, 1790, fig. 1921.

*Patelloidea fragilis*, Quoy & Gaimard: Voy. Astrolabe, Zool., vol. iii, 1834, p. 351, pl. lxxi, figs. 28–30.

*Lottia fragilis*, Chemn.: Gray in Dieffenbach's N. Zeal., vol. ii, 1843, p. 240.

*Tectura fragilis*, Quoy: Hutton, Cat. Mar. Moll. N. Zeal., 1873, p. 43; von Martens, Crit. List, 1873, p. 35.

*Acmæa fragilis*, Chemn.: Hutton, Man. N. Zeal. Moll., 1880, p. 88; Proc. Linn. Soc. N.S. Wales, vol. ix, p. 374; Pilsbry, Man. Conch. (1), vol. xiii, p. 59, pl. xxxvii, figs. 14-15; Hutton, Index Faunæ Nov. Zeal., p. 85.

*Patella unguis-almæ*, Lesson: Voy. Coquille, Zool., vol. ii, 1830, p. 420.

*Patella Solandri*, Colenso: Tasm. Journ. Nat. Sci., vol. ii, 1844, pp. 226, 250; Trans. N. Zeal. Inst., vol. xiv, p. 168.

Shell ovate, flattened, membranaceous, pellucid, with concentric bands of brown and greenish-white, the whole surface being sculptured by exceedingly fine, close, subequidistant radiate striæ, cut up into minute oval nodules by incremental lines. Colour dark brown, lighter near the apex, banded with narrow white or light-green concentric lines. Apex anterior, submarginal, exactly in the middle line, sharply pointed and directed forward. Inside with an emerald ring around the muscle impression, margin sharp, with a brown border; spatula showing the concentric bands of the dorsal part of the shell, and having an elongated patch of light emerald in the centre.

Length 15, breadth 12, height 2 mm.

„ 17, „ 13, „ 2.25 mm.

Dentition (Fig. 11): The two central and the two anterior, inner lateral teeth are hamate, the outer posterior two laterals small and conical. A paper on the anatomy has been published by M. A. Willcox in Jenaer Zeitschr., vol. xxxii, 1898, pp. 411-456, pls. xvii-xix.

*Hab.*—Throughout New Zealand and at the Chatham Islands, under stones between tide-marks. It is local in its distribution and one of our most constant species.

6. *ACMÆA SEPTIFORMIS* (Quoy & Gaimard). Pl. XXVII, Figs. 12-14.

*Patelloidea septiformis*, Q. & G.: Voy. Astrolabe, Zool., vol. iii, 1834, p. 362, pl. lxxi, figs. 43-44.

*Acmæa septiformis*, Pilsbry: Man. Conch. (1), vol. xiii, p. 55, pl. xxxvii, figs. 93-94.

*Acmæa scabrilirata*, Angas: Proc. Zool. Soc., 1865, p. 154; Pilsbry, t.c., p. 56.

*Acmæa Petterdi*, Ten.-Woods: Proc. Roy. Soc. Tasm., 1876 (1877), p. 155; Pilsbry, t.c., p. 54.

Pritchard & Gatliff (Proc. Roy. Soc. Vic., vol. xv (N.S.), p. 195), following Tenison-Woods, take *A. cantharus*, Reeve, as a synonym of the species, but I cannot agree with them. Reeve's species I take to be precipitose to New Zealand.

Shell oval, conical to depressed, radiating riblets distinct or nearly obsolete, sometimes tessellated with green and white. The sculpture is very variable; typically the shell is delicately radiately striated, but then specimens occur which have acute, distant, and slightly granulose radiating riblets, whilst others show almost no trace of sculpture. The colour is brown, tessellated with green or white, but uniformly dark-brown examples are also met with. The apex is at about the anterior fourth, but very often submarginal or even marginal; it is pointed forward and obtuse. Inside blue or whitish, lineolate

with brown. In specimens from the Auckland Islands and Campbell Island the whole of the interior is bluish-black, a lighter band around the spatula; it is beautifully iridescent with dark blue, quite an exception in this family. Margin sharp, usually with a brown border, which is sometimes banded with yellow.

Length 14, breadth 12, height 6 mm.

„ 15, „ 11, „ 7 „ (Auckland Islands).

„ 16.5, „ 12.5, „ 4 „ (Chicken Island).

The dentition is very similar to that of *A. fragilis*. Figs. 12-14 show different aspects of the teeth of the radula.

*Hab.* — Chicken Island (C. Cooper); west coast of Manukan (C. Spencer); Dunedin; Auckland Islands (Captains Hutton and Bollons); Campbell Island (Captain Bollons). On rocks between tide-marks. Found also in Australia and Tasmania. The type is from King George's Port, W. Australia.

The variability of this species is very remarkable; the sculpture, the colour, and the shape of the shell differ to such an extent that it would be easy to make about half a dozen apparently well-characterized species. It is only by examining good series of specimens from different localities that the gradual transition of one form into another can be observed. I have also examined the dentition of several of the extreme forms, and found it always the same as in typical examples from New Zealand and Tasmania.

Type in Mus. Hist. Nat., Paris.

7. *ACMÆA PILEOPSIS* (Quoy & Gaimard). Pl. XXVI, Figs. 15-16.

*Patelloidea pileopsis*, Q. & G.: Voy. Astrolabe, Zool., vol. iii, 1834, p. 359, pl. lxxi, figs. 25-27.

*Lottia pileopsis*, Q.: Gray in Dieffenbach's N. Zeal., vol. ii, p. 240.

*Tectura pileopsis*, Q.: Hutton, Cat. Mar. Moll. N. Zeal., 1873, p. 43; v. Martens, Crit. List, 1873, p. 35; Hutton, Journ. de Conch., vol. xxvi, p. 36.

*Acmæa pileopsis*, Hutton: Man. N. Zeal. Moll., 1880, p. 88; Proc. Linn. Soc. N.S. Wales, vol. ix, p. 373; Pilsbry, Man. Conch. (1), vol. xiii, p. 57, pl. xxxvii, figs. 90-92; Hutton, Index Faunæ Nov. Zeal., p. 85.

*Patelloides antarctica*, Hombron & Jacquinot: Ann. Sci. Nat., ser. II, vol. xvi, 1841, p. 190; Pilsbry, t.c., p. 157.

*Patella floccata*, Reeve: Conch. Icon., 1855, fig. 106; Pilsbry, t.c., pl. lxix, figs. 38-39; E. A. Smith, Proc. Malac. Soc., vol. i, p. 59; H. Suter, l.c., vol. vi, p. 354.

Shell comparatively large, ovate-convex, radiately striated, blackish, and dotted with whitish. The sculpture consists of very numerous fine, thread-like, radiate striæ, crenulated by concentric growth-lines. Adult shells may show only the incremental lines, the radiate ornamentation having been worn off. Colour greenish-brown, dotted and netted with white or light green. Specimens from the subantarctic islands are often uniformly brown. Apex anterior, extending as far as the margin, but occasionally situated as far back as the anterior

fourth of the length, slightly hooked; anterior slope concave, seldom straight. Inside white or bluish-white, the spatula chestnut brown; a dark-brown band inside the margin, very often banded with yellowish-brown; margin sharp.

Length 20·25, breadth 15·75, height 9 mm. Type.  
 " 28, " 24, " 10 " Manukan Coast.  
 " 30, " 23, " 11 " Auckland Islands.

Dentition: Hutton, Trans. N. Zeal. Inst., vol. xv, p. 127, pl. xv, fig. M. The accompanying Figures 15 and 16 are copied from Hutton.

*Hab.*—Both main islands of New Zealand; Bay of Islands (Q. & G.); west coast of Manukan (C. Spencer); Kawhia (R. Murdoch); French Pass (Q. & G., type); Lyttelton (H. S.); also Snares Islands (Captain Bollons); Auckland Islands (A. Hamilton); Campbell Island (Captain Bollons).

All the specimens I have found were fixed to rocks in excavations considerably above high-water mark, and protected against rain. There is considerable variation in the form of the shells, some being elongate-oval, others much more rounded; again, they may be high or much depressed. The situation of the apex is also variable, but in the majority of shells it is marginal. The whitish dots are often small and numerous, or larger, elongate or triangular, and fewer in number; they may be present only toward the margin or altogether absent. Type in Mus. Nat. Hist., Paris.

#### 8. *ACMÆA CANTHARUS* (Reeve). Pl. XXVII, Figs. 17–18.

- Patella cantharus*, Reeve: Conch. Icon., Patella, 1855, fig. 131.  
*Nacella cantharus*, Reeve: Hutton, Cat. Mar. Moll. N. Zeal., 1873, p. 46.  
*Tectura cantharus*, Reeve: v. Martens, Crit. List, 1873, p. 35; Hutton, Journ. de Conch., vol. xxvi, p. 36.  
*Acmea cantharus*, Reeve: Hutton, Man. N. Zeal. Moll., 1880, p. 88;  
 Pilsbry, Man. Conch. (1), vol. xiii, p. 55, pl. xxxvii, figs. 1–2;  
 Hutton, Index Faunæ Nov. Zeal., p. 85.

Shell small, ovate, thin; apex anterior, blotched with white. The sculpture consists of fine microscopic radiate striæ; one of my specimens shows a few well-marked distant riblets on the posterior side, but this is an exception; concentric growth-lines are fairly conspicuous. Colour black or brown, blotched and tessellated with white. Apex very anterior, sharp and hooked; anterior slope concave. Inside light blue, occasionally light brown, spatula chestnut brown; the sharp margin having a rather broad brown border, often banded or dotted with yellowish-brown. Length 17, breadth 13·5, height 4·5 mm.

Dentition: The Figures 17–18 show two aspects of one row of teeth.

*Hab.*—The type was collected in New Zealand by Earl, no exact locality given. The species is represented in my collection from the following localities: Oamaru; St. Clair, near Dunedin (H. S.); Grey-mouth; Preservation Inlet; all South Island; Macquarie Island (A. Hamilton).

At first sight this species would seem to be a young *A. pileopsis*, but there are some points which separate the two. First of all *A. cantharus* never attains a larger size than that indicated above; the radial sculpture is visible only under a good lens—that is why Reeve called it smooth, and which it really is to the naked eye. If exceptionally a few ribs are present they are much farther apart than those of *A. pileopsis*. The apex is much sharper and more hooked, also much more constant in its anterior position. The inside between marginal band and spatula is really light blue, not whitish or bluish-white as in *A. pileopsis*. It lives like most other species on rocks between tide-marks, and I have never seen it high up where only the spray of the sea could reach it. Type in the British Museum.

9. *ACMÆA CAMPBELLI* (Filhol). Pl. XXVII, Figs. 19–21.

*Patella Campbelli*, Filhol: Comptes Rendus, vol. xci, 1880, p. 1095; Mission de l'île Campbell, 1885, p. 530; Hutton, Proc. Linn. Soc. N.S. Wales, vol. ix, 1884, p. 373.

Shell small, roundish-oval, conical, subpellucid, finely ribbed, pink. The radiate riblets are very numerous and close together, about 40 reach from apex to margin, and about 20 are interstitial riblets; they are broadly convex and crossed by numerous very fine concentric growth-lines. The colour is uniformly pink. Apex small, rounded, situated at about the anterior third of the length; anterior slope straight, posterior slope very little convex. Inside pinkish-white, with white radiating rays corresponding to the riblets; spatula pink, margin crenulate, with a narrow pink border.

Length 5, breadth 5, height 3 mm. Type.

„ 5.75, „ 4.75, „ 3 „ Auckland Islands.

The dentition is shown in Fig. 21; it does not differ much from that of the other species of this group.

*Hab.*—The type was collected by the late Professor Filhol at the entrance to the north-east bay of Campbell Island. My specimen is from the Auckland Islands, and was collected by Captain J. Bollons.

This shell, quite insufficiently described by Filhol and never figured, has been more or less of a puzzle to New Zealand conchologists for a considerable time, and I am most grateful to Captain Bollons for having brought a specimen with the animal. The species seems to be rare or easily overlooked, as I have never seen it before amongst material collected at the subantarctic islands of New Zealand. Type in Mus. Hist. Nat., Paris.

10. *ACMÆA PARVICONOIDEA*, n.n. Pl. XXVII, Figs. 22–25.

*Acmaea conoidea*, Q. & G.: Hutton, Trans. N. Zeal. Inst., vol. xv, 1882 (1883), p. 132; Proc. Linn. Soc. N.S. Wales, vol. ix, p. 373; Index Faunæ Nov. Zeal., p. 85, not of Quoy & Gaimard.

Shell small, thin, highly conical to depressed, conoidal, oval, with very fine radiate striæ and irregular brown bands. Good specimens show indistinct and very low radiate riblets, corresponding to the brown lines, and under a strong lens fine and close radiate threads can



be distinguished, crossed by still finer concentric growth-lines; in most examples this sculpture is, however, lost, the shells being more or less eroded. The colour of the type is light brown, with a few dark concentric bands and spots around the margin; the common conoidal form is dirty white, with radiate brown or black lines which reach up to the apex, or, more commonly extend only over the lower half of the shell, the upper half being tessellated with black and white. Apex at about the anterior third, directed forward and sharply pointed, but very often rounded off by erosion; the slopes are broadly convex posteriorly, straight or distinctly concave anteriorly. Interior light brown to white; spatula dark brown, with patches of a lighter colour, sometimes quite white; margin sharp, with brown dots and lines.

Length 4.5, breadth 4, height 3.5 mm. Type.

„ 9, „ 7, „ 4 „ The common form.

Dentition: Hutton, Trans. N. Zeal. Inst., vol. xv, p. 127, pl. xv, fig. K. The Figs. 24-25 are a copy. The cutting-points are shorter than usual in this group, but they were longer in several examples I examined.

*Hab.*—The type is from Sumner, near Christchurch, where it may be found living on rocks between clusters of *Modiolus ater*. In my collection the species is represented from the following localities: South Island: Sumner, Heathcote Estuary, Lyttelton, Oamaru, Greymouth. Taumaki Island, 10 fathoms. North Island: Cook Strait, Evans Bay, Port Nicholson, East Cape lighthouse, Auckland Harbour, west coast between Manukan and Kaipara. Also Chatham Islands.

The specimens selected as the type by the late Captain Hutton represent really an extreme form of the species, the high conical and rounded form being no doubt due to environment; it has a striking likeness with the figures given by Quoy & Gaimard, but when specimens are compared there is no more doubt that the New Zealand form is quite distinct from the much larger, more solid, and somewhat differently coloured Australian species.

I have specimens from Tasmania which correspond exactly with *A. parviconoidea*. The variability of this species in shape and colouring is considerable. Type in the Canterbury Museum, Christchurch.

*ACMÆA PARVICONOIDEA*, Suter, var. *LEUCOMA*, n.var.

Shell small, thin, opaque, ovate, depressed, conoidal; sculpture, if any, lost by erosion; colour white, apex obtuse, at about the anterior fourth to fifth. Inside white, spatula greenish-white, margin sharp, with a few small brown dots. Length 7, breadth 5.5, height 2.5 mm.

Dentition unknown. Type in my collection.

*Hab.*—Heathcote Estuary, near Christchurch (H. S.).

*ACMÆA PARVICONOIDEA*, Suter, var. *NIGROSTELLA*, n.var. Pl. XXVII, Figs. 26-29.

The young shell (Fig. 26) reveals under a good lens distant, low, radiate riblets and fine concentric growth-lines. The colour is white, the centre being occupied by a purplish-black, four to nine rayed star;



there are sometimes two short posterior marginal rays; round the apex a few concentric rows of small, oval, vivid blue spots. Inside white, spatula purplish-black, sending off four to nine rays towards the margin. The adult shell has lost all its sculpture; the colour-markings on a whitish ground consist of two lateral and two posterior black rays, descending from the apex and extending only over a short distance; the margin is adorned with numerous short, black lines. Inside yellowish-white, the central area occupied by the now distorted star of purplish-black; margin sharp, with a broad border, rayed with black.

Length 10, breadth 7, height 5 mm. Adult specimen.

„ 4, „ 3, „ 1.5 „ Young specimen.

Dentition unknown. Type in my collection.

*Hab.*—Titahi Bay, Cook Strait. Type (Miss M. Mestayer): Taumaki Island, in 10 fathoms (Captain Bollons).

Sand collected by Miss M. Mestayer at Titahi Bay contained a number of young specimens of what I first took to be a new species. However, I found one example of an adult shell which unmistakably showed, though distorted, the central black star, but otherwise it cannot be separated from *A. parviconoidea*. The fact that the very same young shells were dredged by Captain J. Bollons in 10 fathoms goes to show that these small forms live in the laminarian zone, where they most likely never attain a much larger size than that indicated; but specimens reaching the littoral zone will no doubt grow to the full size of the species with its most constant characters. It was most fortunate that I got this adult shell, otherwise I should not have hesitated to describe the young shell as a new species.

#### 11. ACMEÆA DEDALA, n.n. Pl. XXVII, Figs. 30–32.

*Acmea flammea*, Q. & G.: Hutton, Trans. N. Zeal. Inst., vol. xv, 1882 (1883), p. 132; Proc. Linn. Soc. N.S. Wales, vol. ix, p. 373; Index Faunæ Nov. Zeal., p. 85; not of Quoy & Gaimard.

Shell small, oval, depressed, pellucid, radially netted with brown, apex anterior. The sculpture consists of numerous microscopic radiate striæ, crenulated by fine incremental lines. Colour light yellow; numerous light-brown radiate lines give, by anastomosing the whole surface, a net-like appearance. Apex anterior, at about the anterior eighth, slightly pointed; anterior slope concave. Interior bluish-yellow, showing the ornamentation of the outside; spatula indistinctly marked; margin sharp. Length 7, breadth 5.5, height 2 mm. Type.

Dentition: Hutton, Trans. N. Zeal. Inst., vol. xv, p. 128, pl. xv, fig. N. The Fig. 32 is copied after Hutton.

*Hab.*—The type is from Auckland Harbour. My collection supplies the following localities:—North Island: Auckland Harbour, Rakino Island, Cook Strait, Wellington Harbour. South Island: Sumner, Lyttelton, Greymouth. According to Hutton it is found as far south as Dunedin.

In this instance, again, the late Captain Hutton cannot have seen specimens of *A. flammea*, Q. & G., or he would never have assigned our small, fragile, and pellucid shell to that species, which is much larger and solid. This is one of our fairly constant species. Fossil in the Pliocene. Type in the Canterbury Museum, Christchurch.

ACMÆA DÆDALA, Suter, subsp. SUBTILIS, n. subsp. Pl. XXVII,  
Fig. 33.

This subspecies has the same microscopic sculpture as the species, but it is more transparent, more fragile, smaller, whitish, ornamented with fine, radiate, and narrow brown lines. Interior whitish, showing all the brown lines; spatula slightly greenish, polished, but indistinctly circumscribed.

Length 2.5, breadth 1.5, height 0.05 mm. Type.  
" 6.5, " 4.5, " 1.75 " Taumaki specimen.

Dentition unknown. Type in my collection.

*Hab.*—Between Little Barrier Island and Tiri-Tiri Island in 20 fathoms, type (R. H. Shakespear); Taumaki Island, in 10 fathoms (Captain Bollons).

12. ACMÆA HELMSI, E. A. Smith.

*Acmæa Helmsi*, E. A. Smith: Proc. Malac. Soc., vol. i, 1894, p. 58, pl. vii, figs. 4-5; Hutton, Index Faunæ Nov. Zeal., p. 85.

Shell small, depressed, cap-shaped, almost smooth, bluish-grey, ornamented with numerous radiating, reddish-black narrow lines; apex subterminal, anterior slope slightly concave, posterior slope convex, arcuate. Interior greenish, central area white, with a few rufous spots, margin but faintly crenulate; border narrow, yellow, marked all round with reddish-black rays (E. A. Smith). Length 11.5, breadth 9, height 4 mm.

Dentition unknown. Type in the British Museum.

*Hab.*—Greymouth, type (R. Helms); Cape Egmont (R. Murdoch).

13. ACMÆA SCAPHA, n. sp. Pl. XXVII, Figs. 34-35.

Shell very small, long and narrow, laterally compressed, sides parallel. Nearly the whole surface of my specimens is eroded, but near the margin traces of radiate fine riblets can be seen. Colour light brown, with a few concentric bands of darker. Apex situated at about the anterior fourth, rounded; side-slopes steep and straight, anterior slope straight, posterior slope convex. Inside with the spatula dark brown, lighter under the apex, a narrow brown border on the margin, space between this and the spatula covered by a whitish callus. Length 4, breadth 1.75, height 1.5 mm.

Dentition unknown. Type in my collection.

*Hab.*—Dunedin (A. Hamilton).

This curiously shaped species resembles somewhat the Californian species *A. paleacea*, Gould, and *A. depicta*, Hinds. Whether in this case the narrow elongated form is an adaptation to an existence on fronds of seaweeds I am unable to say, but it seems very likely.

Subgenus COLLISELLINA, Dall, 1871.

Formula of teeth of radula, 2 . 2 (1 + 0 + 1) 2 . 2. Type, *A. saccharina*, L.

14. ACMÆA STELLA (Lesson). Pl. XXVII, Figs. 36-37.

*Patella stella*, Lesson: Voy. Coquille, Zool., vol. ii, 1830, p. 421; Hutton, Man. N. Zeal. Moll., 1880, p. 110.

Shell solid, depressed, irregularly oval, strongly ribbed, whitish, margin lacinate. The sculpture consists of 7 radiating angular ribs, rounded above, thick, separated by wide depressions, three in front, four behind the apex; in the interspaces between these main ribs there are one or two smaller ribs; all of these ribs strongly and irregularly denticulate the margin. Strong concentric ridges are mostly present. Colour dirty white or greenish, with black in double interrupted circles. Apex situate at the anterior third. Inside bluish-white, spatula light brown or blue, dotted with brown; the margin with a few dark-brown spots or a continuous brown border, tips of rays white.

Length 21, breadth 19, height 6.25 mm. Type.

„ 21, „ 18, „ 5 „ Specimen figured.

Dentition: Fig. 37 shows the central and lateral teeth typical, and two marginals on each side in addition.

*Hab.*—Heads of Wellington Harbour and Island Bay, Cook Strait (Miss M. Mestayer); Taumaki Island, west coast of South Island, in 10 fathoms (Captain Bollons).

This species is very closely allied to *A. alticostata*, Angas, from Australia and Tasmania.

ACMÆA STELLA (Less.), subsp. CORTICATA, Hutton. Pl. XXVII, Figs. 38-41.

*Acmea corticata*, Hutton: Man. N. Zeal. Moll., 1880, p. 89; Proc. Linn. Soc. N.S. Wales, vol. ix, p. 372.

*A. lacunosa*, Reeve: Hutton, Trans. N. Zeal. Inst., vol. xvi, p. 215; Pilsbry, Man. Conch. (1), vol. xiii, p. 52, pl. xxxvii, figs. 7-11, not of Reeve.

Shell oval, conoidal, ribbed. There are 14 to 22 rounded, roughened, radiate ribs, a few of them short, crossed by incremental ridges. Colour white, nearly always obscured by a layer of Nulliporites. Apex a little in front of the middle, obtuse; slopes straight; margin denticulate. Inside bluish-white, spatula white or brown, sometimes faintly radiately streaked with black; margin with a black border or dark-brown spots.

Length 14, breadth 13, height 9 mm. Type.

„ 13, „ 9.5, „ 5 „ Specimen figured.

Dentition: Hutton, Trans. N. Zeal. Inst., vol. xv, p. 127, pl. xv, fig. L. A copy of Hutton's figure is here reproduced (Fig. 41). Type in the Canterbury Museum, Christchurch.

*Hab.*—The type is from Dunedin; North and South Islands and at the Chatham Islands.

This subspecies is distinguished from the species by the usually smaller size and the disappearance of the seven primary stronger ribs. The margin is not lacinate, and the ribs are more numerous and equal.

#### 15. ACMÆA OCTORADIATA (Hutton).

*Patella octoradiata*, Hutton: Cat. Mar. Moll. N. Zeal., 1873, p. 44.

*P. stellaris*, Q. & G.: Hutton, Journ. de Conch., vol. xxvi, p. 37, non Quoy & Gaimard.

*Acmæa saccharina*, L., var. *perplexa*, Pilsbry: Man. Conch. (1), vol. xiii, p. 50, pl. xxxvi, figs. 69-71.

*Acmæa octoradiata*, Hutt.: Hedley, Proc. Linn. Soc. N.S. Wales, 1904, p. 188; Hutton, Index Faunæ Nov. Zeal., p. 1904.

Shell depressed, star-shaped, whitish. There are 5 large rounded ribs behind and 3 in front of the apex, reaching far beyond the margin; they and their interspaces are all ornamented with fine radiate riblets. Colour white or creamy, with fine radiating reddish-brown lines. Apex at about the anterior third, obtuse. Interior white, with a few flesh-coloured spots; border very narrow, dotted with rufous; spatula indistinct. Length 16, breadth 14, height 3 mm.

Dentition unknown. Type in the Colonial Museum, Wellington.

*Hab.*—West coast of the South Island (type); Bluff (A. Hamilton); Chatham Islands.

Although the dentition is unknown, there can be no doubt that this species belongs to the subgenus *Collisellina*. At the instigation of Mr. Hedley the late Captain Hutton expressed the opinion that his *P. octoradiata* and Pilsbry's var. *perplexa* are identical.

*Acmæa Chathamensis*, Pilsbry: Man. Conch. (1), vol. xiii, 1891, p. 56, pl. xxxv, figs. 43-46.

A specimen in my collection fully agrees with the diagnosis and the figures given by Pilsbry, except the apex being more anterior, the interior distinctly iridescent, with a silvery lustre, and the spatula cream-colour. The dimensions are almost exactly those given by Pilsbry for the larger specimen. I have not the least hesitation in assigning this species to *Helcioniscus radians*, Gmel., subsp. *affinis*, Reeve, of which it represents an extreme form. (The dimensions given for *Helc. affinis* in these Proceedings, vol. vi, p. 349, should read: 33 × 27 × 7 mm.)

#### EXPLANATION OF PLATE XXVII.

FIGS.	1-2.	<i>Acmæa rubiginosa</i> (Hutt.).	
"	3-4.	" <i>cingulata</i> , Hutt.	
FIG.	5.	" "	teeth of radula, magnified. After Hutton.
FIGS.	6-8.	" <i>intermedia</i> , Sut.	
"	9-10.	" <i>roseoradiata</i> , Sut.	
FIG.	11.	" <i>fragilis</i> (Chemn.),	teeth of radula, magnified.
FIGS.	12-14.	" <i>septiformis</i> (Q. & G.),	" "
"	15-16.	" <i>pileopsis</i> (Q. & G.),	" " After Hutton.
"	17-18.	" <i>cantharus</i> (Reeve),	" "
"	19-20.	" <i>Campbelli</i> (Filhol).	
FIG.	21.	" "	teeth of radula, magnified.
FIGS.	22-23.	" <i>parviconoidea</i> , Sut.	Type.
"	24-25.	" "	teeth of radula, magnified. After Hutton.
"	26-29.	" "	v. <i>nigrostella</i> , Sut.
"	30-31.	" <i>dedala</i> , Sut.	Type.
FIG.	32.	" "	teeth of radula, magnified. After Hutton.
"	33.	" "	subsp. <i>subtilis</i> , Sut.
FIGS.	34-35.	" <i>scapha</i> , Sut.	
FIG.	36.	" <i>stella</i> (Less.).	
"	37.	" "	teeth of radula, magnified.
FIGS.	38-40.	" "	subsp. <i>corticata</i> , Hutton.
FIG.	41.	" "	teeth of radula, magnified. After Hutton.